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## CLAIMS

### What Is Claimed Is:

- 5           1. A hybrid polymer film, comprising:  
            a first polymer film having a plasma-treated surface; and  
            a second polymer film having first and second surfaces, the first surface  
of the second polymer film being disposed along the first plasma-treated surface of the  
first polymer film.
- 10           2. The hybrid polymer film of claim 1, wherein the second polymer film is  
formed from a radiation-cured monomer film.
3. The hybrid polymer film of claim 2, wherein the second polymer film is an  
15   acrylate polymer film.
4. The hybrid polymer film of claim 3, wherein the second polymer film is a  
fluorinated acrylate polymer film.
- 20           5. The hybrid polymer film of claim 2, wherein the second surface of the  
second polymer film is a plasma-treated surface.
6. The hybrid polymer film of claim 1, wherein the second surface of the  
second polymer film is a plasma-treated surface.
- 25           7. The hybrid polymer film of claim 1, wherein the first polymer film is formed  
from a thermoplastic polymer.
8. The hybrid polymer film of claim 1, wherein the first polymer film is formed  
30   from a thermoset polymer.

9. The hybrid polymer film of claim 1, wherein the first plasma-treated surface of the first polymer film has a microroughness greater than about 1 nanometer.

10. The hybrid polymer film of claim 1, further comprising a metal film having first and second surfaces, the first surface of the metal film disposed along the second surface of the second polymer film.

11. The hybrid polymer film of claim 5, further comprising a metal film having first and second surfaces, the first surface of the metal film disposed along the plasma-treated surface of the second polymer film.

12. The hybrid polymer film of claim 10, further comprising a third polymer film having first and second surfaces, the first surface of the third polymer film being disposed along the second surface of the metal film.

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13. The hybrid polymer film of claim 11, further comprising a third polymer film having first and second surfaces, the first surface of the third polymer film being disposed along the second surface of the metal film.

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14. The hybrid polymer film of claim 12, wherein the third polymer film is formed from a radiation-cured monomer film.

15. The hybrid polymer film of claim 1, wherein the first polymer film has a second plasma-treated surface.

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16. The hybrid polymer film of claim 15, further comprising a third polymer film disposed along the second plasma-treated surface of the first polymer film.

17. The hybrid polymer film of claim 16, wherein the third polymer film is an acrylate polymer film.

30

18. The hybrid polymer film of claim 17, wherein the third polymer film is a fluorinated acrylate polymer film.

19. The hybrid polymer film of claim 1, further comprising a ceramic layer  
5 disposed along the second surface of the second polymer film.

20. The hybrid polymer film of claim 19, wherein the ceramic layer comprises a material selected from the group consisting of aluminum oxide, a silicon oxide, tantalum oxide, aluminum nitride, silicon nitride, silicon oxy-nitride, zinc oxide, indium  
10 oxide, and indium tin oxide.

21. The hybrid polymer film of claim 20, wherein the ceramic layer comprises a material selected from the group consisting of aluminum oxide and a silicon oxide.

15 22. A hybrid polymer film, comprising:  
a first polymer film having a plasma-treated surface; and  
a first metal film having first and second surfaces, the first surface of the first metal film being disposed along the first plasma-treated surface of the first polymer film.

20 23. The hybrid polymer film of claim 22, wherein the first metal film is formed from a material selected from the group consisting of aluminum, zinc, nickel, cobalt, iron, iron on aluminum, zinc on silver, zinc on copper, zinc on aluminum, nickel-cobalt alloy, and nickel-cobalt-iron alloy.

25 24. The hybrid polymer film of claim 22, wherein the first polymer film is formed from a thermoplastic polymer.

25 25. The hybrid polymer film of claim 22, wherein the first polymer film is  
30 formed from a thermoset polymer.

26. The hybrid polymer film of claim 22, wherein the first plasma-treated surface of the first polymer film has a microroughness greater than about 1 nanometer.

27. The hybrid polymer film of claim 22, further comprising a second polymer  
5 having first and second surfaces, the first surface of the second polymer film disposed along the second surface of the first metal film.

28. The hybrid polymer film of claim 27, wherein the second polymer film is  
10 formed from a radiation-cured monomer film.

29. The hybrid polymer film of claim 28, wherein the second polymer film has a plasma-treated surface.

30. The hybrid polymer film of claim 28, wherein the second polymer film is an  
15 acrylate polymer film.

31. The hybrid polymer film of claim 27, further comprising a second metal film  
20 having first and second surfaces, the first surface of the second metal film disposed along the second surface of the polymer film.

32. The hybrid polymer film of claim 29, further comprising a second metal film  
having first and second surfaces, the first surface of the second metal film disposed  
along the plasma-treated surface of the second polymer film.

25 33. The hybrid polymer film of claim 31, further comprising a third polymer film disposed along the second surface of the second metal film.

34. The hybrid polymer film of claim 33, wherein the third polymer film is  
30 formed from a radiation-cured monomer film.

35. The hybrid polymer film of claim 32, further comprising a third polymer film disposed along the second surface of the second metal film.

36. The hybrid polymer film of claim 35, wherein the third polymer film is  
5 formed from a radiation-cured monomer film.

37. The hybrid polymer film of claim 36, wherein the third polymer film has a plasma-treated surface.

10 38. The hybrid polymer film of claim 33, wherein the first metal film comprises a reflective film of aluminum, the second polymer film comprises an acrylate polymer having a thickness that is  $\frac{1}{4}$  wavelength of visible light, the second metal film comprises a semi-transparent film of aluminum, and the third polymer film comprises an acrylate polymer.

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39. A method of forming a hybrid polymer film, the method comprising the steps of:

plasma-treating a first surface of a first polymer film to form a first plasma-treated surface of the first polymer film; and

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forming a second polymer film on the plasma-treated surface of the first polymer film.

40. The method of claim 39, wherein the step of forming a second polymer film includes the steps of:

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depositing a monomer film on the first plasma-treated surface of the first polymer film; and

radiation-curing the monomer film.

41. The method of claim 40, further comprising the step of:

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plasma-treating a surface of the second polymer film to form a plasma-treated surface of the second polymer film.

42. The method of claim 41, further comprising the step of:  
depositing a metal film on the plasma-treated surface of the second  
polymer film.

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43. The method of claim 42, further comprising the step of:  
forming a third polymer film on a surface of the metal film.

44. The method of claim 43, wherein the step of forming the third polymer film  
10 includes the steps of:  
depositing a monomer film on the surface of the metal film; and  
radiation-curing the monomer film.

45. The method of claim 39, further comprising the step of:  
15 plasma-treating a second surface of the first polymer film to form a  
second plasma-treated surface of the first polymer film.

46. The method of claim 45, further comprising the step of:  
forming a third polymer film on the second plasma-treated surface of  
20 the first polymer film.

47. The method of claim 46, wherein the step of forming the third polymer film  
includes the steps of:  
depositing a monomer film on the second plasma-treated surface of the  
25 first polymer film; and  
radiation-curing the monomer film.

48. The method of claim 39, further comprising the step of depositing a  
ceramic layer on the surface of the second polymer film.

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49. A method of forming a hybrid polymer film, the method comprising the steps of:

plasma-treating a first surface of a first polymer film to form a plasma-treated surface of the first polymer film; and

5 forming a metal film on the plasma-treated surface of the first polymer film.

50. The method of claim 49, further comprising a step of:

forming a second polymer film on a surface of the metal film.

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51. The method of claim 50, wherein the step of forming the second polymer film includes the steps of:

depositing a monomer film on the metal film; and

radiation-curing the monomer film.

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52. The method of claim 51, further comprising the step of:

plasma-treating a surface of the second polymer film to form a plasma-treated surface of the second polymer film.

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53. The method of claim 52, further comprising the step of:

depositing a second metal film on the plasma-treated surface of the second polymer film.

54. The method of claim 53, further comprising the step of:

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forming a third polymer film on the surface of the second metal film.

55. The method of claim 54, wherein the step of forming the third polymer film includes the steps of:

depositing a monomer film on the surface of the second metal film; and

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radiation-curing the monomer film.



56. The method of claim 55, further comprising the step of:

plasma-treating a surface of the second polymer film to form a plasma-treated surface of the second polymer film.